REMARKS

Claims 11, 14,16-19 and 21 are pending in this application.

Claims 11 and 16 have been amended to point out that the catalyst for the decomposition of N_2O is installed as a fixed bed having a height of from 5 to 10 cm. Newly added claim 21 provides coverage for the use of the catalyst in the form of star extrudates which is supported at example 2 and page 4, lines 34 to 35.

The claims stand rejected under 35 USC § 103(a) as being unpatentable over Kongshaug et al. in view of Fetzer et al. This rejection is traversed. According to the present invention it has been found that the catalyst as disclosed in Fetzer can be integrated in existing reactors for the Oswald process without rebuilding the reactors. This is because according to the present invention only a low catalyst bed height is required. As is evident from the examples in the present application a fixed catalyst bed having a thickness of 9 cm or 10 cm is sufficient to essentially reduce the N_2O concentration. Thus, existing reactors can be modified to enable the process of the present invention to be carried out without replacement of the reactor being necessary, see page 3, lines 33 to 36 of the specification.

Furthermore, it has been found according to the present invention that the catalyst as defined in the claims can be employed without causing an essential pressure drop in the reactor. This is also a result of the low height of the catalyst bed, preferably, the catalyst has a star extrudate shape which also helps for a low pressure drop in the reactor, see page 6, lines 27 to 30. Again it stated that since reactors are built for accomodating

catalyst gauzes rebuilding of a nitric acid plant is generally not necessary. Furthermore, no additional heating or cooling is required for the removal of N_2O, see page 6, lines 33-36. None of the references indicate that the Fetzer catalyst can be employed in an Ostwald reactor without deteriorating the process. According to the present invention, residence times of 0.03 to 0.05 seconds are sufficient to obtain an effective N_2O decomposition is a catalyst bed that has a thickness of 5 to 10 cm, see the examples. Fetzer discloses a thickness of the catalyst bed of 26 cm in the examples, since 40 ml of catalyst are used in a reaction tube having an inner cross-section of 1.54 cm^2, see column 3, lines 40 to 49. The temperatures according to Fetzer is in the range of from 480 to 640°C, see the tables in column 5.

In view of the foregoing amendment, remarks and the examples in the present specification, the applicants respectfully urge that the presently claimed invention is patentable and a notice of allowance is solicited.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees to Deposit Account No. 11-0345. Please credit any excess fees to such deposit account.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Cancel claims 12, 13, 15 and 20.

Amend claims 11 and 16 and add new claim 21 as follows:

11. (twice amended) A reactor for the catalytic oxidation of ammonia t nitrogen oxides, which contains a noble metal gauze catalyst and a heat exchanger in that order in the direction of flow and has a catalyst for the decomposition of N_2O which is prepared by combining $CuAl_2O_4$ with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture thus obtained at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar located between the noble metal gauze catalyst and the heat exchanger <u>,and which is installed as a fixed bed having a height of from 5 to 10 cm</u>.

16. (twice amended) A process for the catalytic decomposition of N_2O in a gas mixture obtained in the preparation of nitric acid by catalytic oxidation of ammonia n a reactor having a noble metal gauze catalyst and a heat exchanger in that order in the flow direction, where N_2O is decomposed catalytically over a catalyst for the decomposition N_2O located between the noble metal catalyst and the heat exchanger so that the hot gas mixture obtained from the catalytic oxidation of ammonia is brought into contact with the catalyst for the decomposition of N_2O prior to subsequent cooling, wherein the catalyst for the decomposition of N_2O is prepared by combining $CuAl_2O_4$ with tin, lead and/or an element of main group II or

transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture thus obtained at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar ,and wherein the catalyst is installed as a fixed bed having a height of from 5 to 10 cm.

21.(new) A process as claimed in claim 16, wherein the catalyst is employed in the form of star extrudates.

COPY OF ALL CLAIMS

11. (twice amended) A reactor for the catalytic oxidation of ammonia t nitrogen oxides, which contains a noble metal gauze catalyst and a heat exchanger in that order in the direction of flow and has a catalyst for the decomposition of N_2O which is prepared by combining $CuAl_2O_4$ with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture thus obtained at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar located between the noble metal gauze catalyst and the heat exchanger ,and which is installed as a fixed bed having a height of from 5 to 10 cm.

14. An apparatus for preparing nitric acid from ammonia, comprising in this order

- a reactor as claimed in claim 11,
- an absorption unit for the absorption of nitrogen oxides in an aqueous medium.

16. (twice amended) A process for the catalytic decomposition of N_2O in a gas mixture obtained in the preparation of nitric acid by catalytic oxidation of ammonia n a reactor having a noble metal gauze catalyst and a heat exchanger in that order in the flow direction, where N_2O is decomposed catalytically over a catalyst for the decomposition N_2O located between the noble metal catalyst and the heat exchanger so that the hot gas mixture obtained from the catalytic oxidation of ammonia is brought into contact with the catalyst for the decomposition of N_2O prior

to subsequent cooling, wherein the catalyst for the decomposition of N_2O is prepared by combining $CuAl_2O_4$ with tin, lead and/or an element of main group II or transition group II of the Periodic Table of the Elements as oxide or salt or in elemental form and subsequently calcining the mixture thus obtained at from 300 to 1300°C and a pressure in the range from 0.1 to 200 bar ,and wherein the catalyst is installed as a fixed bed having a height of from 5 to 10 cm.

17. A process as claimed in claim 16, wherein the residence time over the catalyst for the decomposition of N_2O is less than 0.1 s.

18. A process as claimed in claim 16, wherein the decomposition of N_2O is carried out at from 60- to 959°C and/or at a pressure in the range from 1 to 15 bar.

19. An apparatus for preparing nitric acid from ammonia, comprising in this order

- a reactor as claimed in claim 14,
- an absorption unit for the absorption of nitrogen oxides in an aqueous medium and,
- a reduction unit for the selective catalytic reduction of nitrogen oxides.

21.(new) A process as claimed in claim 16, wherein the catalyst is employed in the form of star extrudates.